Successful Methods

A Magazine of Construction Service

Published by SUCCESSFUL METHODS, Inc.
S. T. HENRY, President — WILLIAM JABINE, Secretary and Editorial Director
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We Introduce the New Owners of Successful Methods

WE are pleased to announce the sale of SUCCESSFUL METHODS to the McGraw-Hill Publishing Company. Hereafter this paper will be issued by that organization, which also publishes fourteen other business papers, including such well-known papers as *Engineering News-Record, Electrical World, Electric Railway Journal, Engineering & Mining Journal-Press* and *Coal Age*. These five papers cover completely the fields in which construction equipment is extensively used for construction, maintenance and the handling of bulk materials. The advantage to the reader of associating SUCCESSFUL METHODS with such papers is obvious.

Started in 1919 by a group of non-competing manufacturers, SUCCESSFUL METHODS was planned to be chiefly a pictorial magazine illustrative of the use of construction and material handling equipment. At that time the use of pictures in business papers was limited. In fact, only a few have yet realized how much solid information can be given by pictures. At the same time there are large groups of men who have not the patience to get information through written descriptions.

These conditions have permitted SUCCESSFUL METHODS to obtain the place we are happy to know that it holds in the estimation of thousands of men who build and maintain buildings and other structures in all lines of industry. The time has arrived, however, when the opportunities for the paper call for the resources and facilities of a large organization. We have had ambitious plans that require capital and men. The McGraw-Hill Publishing Company was the one concern qualified to do the job. We are really glad to know that that company is to go ahead with the paper along the lines we have dreamed that we might direct it.

It is gratifying to us, too, to know that the new owners want the present staff of SUCCESSFUL METHODS to continue with the paper. We are fully confident that with the enlarged staff and resources we shall be able to produce a profusely illustrated magazine which will give men who move materials, who build, and who maintain in every line of industry ideas that will help them do a better job.

S. T. HENRY — WM. JABINE.

"Glad to Meet You"

AS the new owners of SUCCESSFUL METHODS, we say, in reply to the introduction of Mr. Henry and Mr. Jabine, We are glad to meet you.

We hope that our friendship will long continue and that it will grow stronger every year.

Why did the McGraw-Hill Publishing Company buy SUCCESSFUL METHODS?

Because we had watched the growth of the paper for years and had seen that it was doing a good job in carrying valuable information to many users of equipment who would not take the trouble to read the written word. These men—you, the man we are talking to—are a large and vital part of the industries in which you are engaged. We wanted to help in the job of bringing you valuable information in a form in which it can be easily and quickly grasped. We believed that we knew how to make SUCCESSFUL METHODS a better paper—and when we compared notes with Mr. Henry and Mr. Jabine, we found that they had somewhat similar ideas, but had not applied them because of the expense involved.

So now, as owners, we are going to cooperate in working out a still more valuable SUCCESSFUL METHODS. The full help of the McGraw-Hill field photo service department, with 1800 field photographers on call, will be placed at their disposal. So, also, will be the large drafting facilities of the McGraw-Hill Publishing Company, so that sketches and plans will be available when they will help.

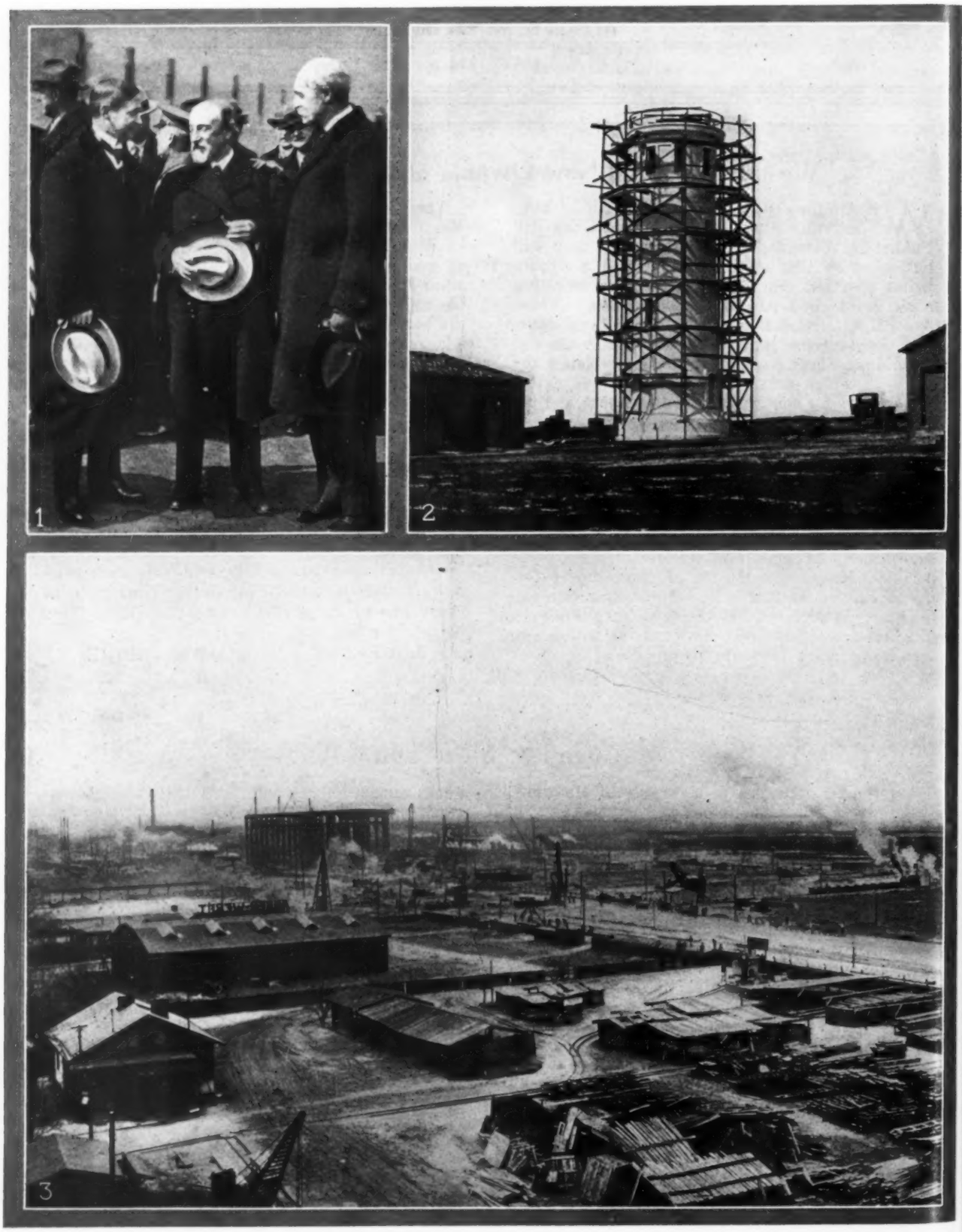
At the same time, we do not want to work alone. A good magazine is always a cooperative proposition. We want *your* help. You are the men who are doing the new things. Please send Mr. Jabine photographs and a few lines explaining that new kink in sewer construction, that new "hickey" for the derrick, that economical layout for a road job—anything that you have worked out to save time and money. Some other fellow will benefit from your work and you will benefit from his.

So, again, we say to you, the SUCCESSFUL METHODS readers:

We are glad to know you. We'll do our best to make a bang-up paper that you'll look for eagerly from month to month. In return we ask your help, your suggestions, and your support.

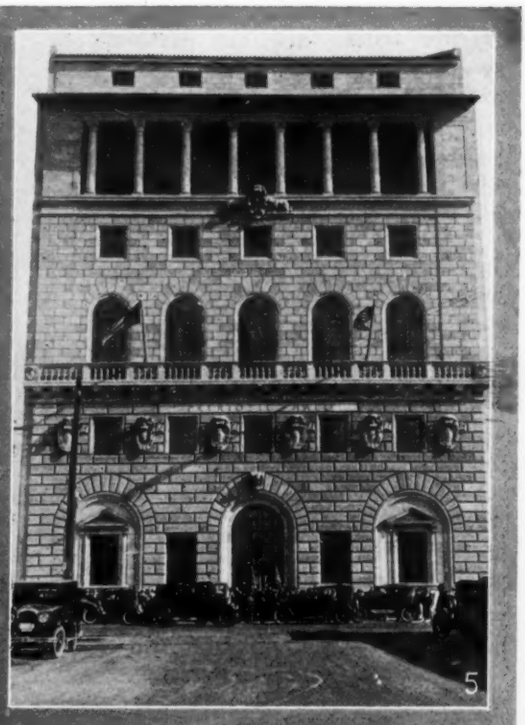
JAMES H. McGRAW, *President*,
McGraw-Hill Publishing Company, Inc.

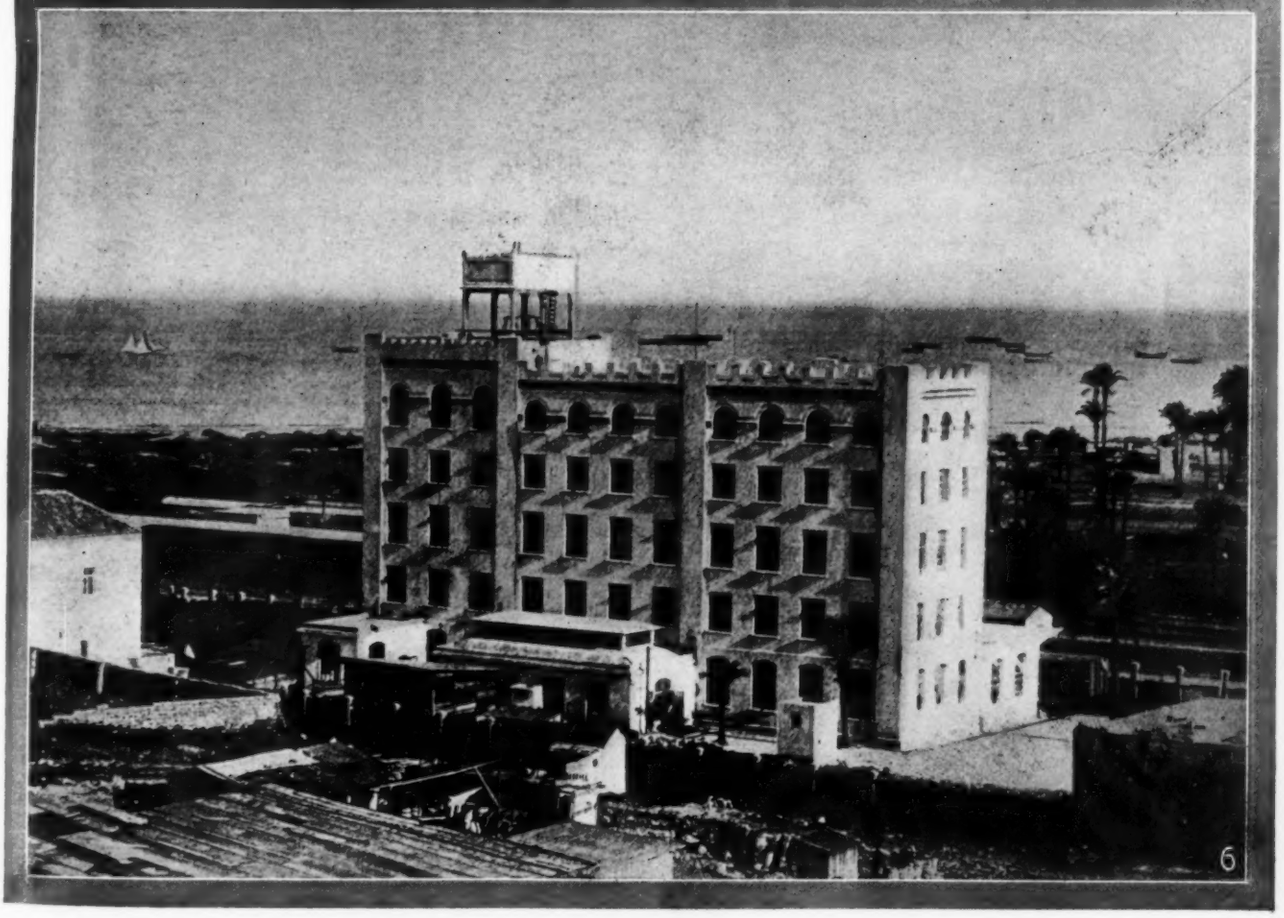
An Engineer Surrounded By Governors



1. Ralph Modjeski, Chief Engineer of the Delaware River Bridge, receives the congratulations of Governor Moore of New Jersey (left) and Governor Pinchot of Pennsylvania (right). © *Underwood & Underwood*
2. The most powerful lighthouse in the United States, under construction at Point Vicente, California. © *P & A*
3. General view of the great power plant under construction at Runnelsburg, Germany, which is being built with money loaned by American financiers. © *Acme*

England Tries a New Form of Rubber Road





4. A new non-skid pavement composed of the combination of rubber and wood block being tried out in Acton, England. ©P & A
5. Los Angeles dedicates its new Patriotic Hall. © *International*
6. The Hebrew settlers in Palestine have built this modern flour mill at Haifa. © *International*

STEAM SHOVELS ON A STOCK RANCH

Aided by Fleet of Five-ton Trucks They Move Young Mountains

STEAM shovels and 5-ton trucks are not usually regarded as necessities on a cattle ranch. August A. Rubel, owner of the Billiwhack Stock Ranch at Santa Paula, Cal., found it necessary to call them in, however, when he wanted to extend his ranch buildings. In order to make the extensions and additions which Mr. Rubel planned, two hillsides 110 ft. in height had to be cut away and 300,000 cu. yd. of material removed.

SHOVELS WORKING ON TWO LEVELS

The job was undertaken by Charles B. Ryan, a Los Angeles contractor, who began work in August of last year with one Thew gasoline shovel and a Thew steam shovel. Later on two more Thew gasoline shovels were hired from Hake & Sweet, also Los Angeles contractors. Each shovel loaded as much as 220 truck loads a day and averaged about 600 cu. yd. for each 9 hours of work. Much of the digging was in shale.

A fleet of 22 five-ton Mack trucks carried the material away and more than 200 mules worked on the job pulling scrapers and graders.

More than 1000 Holstein cows are quartered at the Billiwhack ranch, which is one of the most elaborately equipped dairy ranches in the country. All of the buildings are constructed of reinforced concrete and are equipped with the most modern dairy machinery. Among the residents is a $110,000 bull.

THE MAGNITUDE OF THE JOB CAN BE VISUALIZED FROM THIS PHOTOGRAPH

DITCHER MAKES FINE RECORD

ALL sorts and conditions of weather were encountered by E. K. Hutchinson & Son of Oyster Bay, N. Y., in using a Barber-Greene ditcher to dig more than 16 miles of trench at an average of 3 ft. 6 in. deep and 18 in. wide between August 1 and December 15 of last year. Ten thousand feet of the work was through ground topped with frost which at times was more than 12 in. deep. A large part of the digging was through nigger-heads and gravel. The record for one day's run was 2650 ft. at a 3 ft. 6 in. depth in 8 hr. The first job consisted of 26,000 ft. of main for the Nassau & Suffolk Lighting Company, which took only four weeks.

On another job which slowed things up a bit the ditcher dug through a heavy rock formation for 6000 ft. This took 6 weeks.

The contract with the Nassau & Suffolk Lighting Company called for opening up the trench and backfilling it after the gas company had put in the pipe.

All the gas company had to do was to weld the pipe and put it in. Hutchinson opened the trench and backfilled it. On a large part of this work the ditcher straddled the pipe which had previously been welded, tested and laid on top of the ground close up to the line of the trench, just as is the custom on oil pipe lines in the West. The cost of this total work using one Barber-Greene ditcher and a Fordson fitted with a scraper for backfilling is truly remarkable. These costs are as follows: Labor, $6,740.33; repairs, $1,007.47 and fuel, $392.64 bringing a total of $8,140.44.

The total footage for this 16 plus miles amounted to 85,274 ft. opened up by the ditcher and backfilled by the Fordson.

Omitting consideration of depreciation on the machines but considering repairs of opening the trench and backfilling it totaled only 9½ cents per ft. The speed attained also was an important factor as the gas mains were greatly needed.

TWO VIEWS OF THE DITCHER AT WORK. THE UPPER PHOTOGRAPH SHOWS THE PIPE ALL READY TO GO IN THE TRENCH

SHORT CUTS WITH CATERPILLARS

Tractors Have Made Place for Themselves All Over the World

THE war-time glory which the tanks achieved dwarfed into insignificance the daily tasks which tractors equipped with Caterpillar tread had been doing. And since the war they have been going right on handling one difficult job after another in every country in the world. They have made possible remarkable economies in all sorts of work and have made a place for themselves in the construction, industrial and agricultural fields. This article with its accompanying photographs describes briefly a few of the many jobs which Caterpillar tractors are doing all over the world.

PLOWING UP AN OLD PAVEMENT

The first use of these tractors for logging purposes occurred in the Pacific Northwest with the freighting of logs on wagons. Today's great logging wheelers yard logs — thousands of feet of them at a time— through unbelievable swamps and over supposedly insurmountable obstacles. At first "yarding" was not done over long distances—a quarter or half a mile to railroad or pond and thence to the mill. Now there are five mile hauls with Caterpillars direct from woods to mill, eliminating from two to three expensive steps of transferring the timber. Rehandling always is costly.

HAULING PIPE THROUGH SWAMPY GROUND IN THE OIL COUNTRY

In the Southern oil fields, where swamps make transportation of pipe for lines a difficult problem, a solution has been found by loading the pipe on heavy wheeled wagons with a Caterpillar to drag them, hub deep, through the heaviest morass—a short cut in time, labor, and expense.

As early as 1917, Caterpillars were used for moving houses, one of the first known of these short cuts taking place at Stockton, California, when the Holt Manufacturing Company, now the Caterpillar Tractor Company, moved a two-story house many blocks in order to make room for extensive additions to its plant. Since that time, many such instances have proved the utility of this short-cut. Over soft ground, with no planks to run on, a two-story house was moved recently, in Amarillo, Texas, with the aid of a Caterpillar. A poultry raiser traded his town property for a farm, and moved two coops, each measuring 20 by 40 ft., and each containing 300 chickens, to his new home in the country without breaking an egg.

PULLING DOWN A BIG TREE

In a certain rural district, Caterpillars were hitched to a frame schoolhouse and towed it gently across fields and roads to its new location, several miles distant.

Somewhat similar is the case of the yacht Harriet which refused, with feminine perversity, to leave her natural element for winter quarters, but which yielded readily to the pleadings of a small Caterpillar. The tractor had to go into the water to get her, though. And there's the case of the Sinclair Refining Company at Cedar Rapids, Iowa, which had seven monster cylindrical oil tanks to move and no way to move them. The Klepach Construction Company came to the rescue with a Caterpillar and provided a short cut in time and money by moving the seven tanks over a three-mile route without so much as cracking a spark plug.

The Caterpillar even helps to raise goldfish! The Grassyforks Fisheries, Inc., at Martinsville, Indiana, has employed tractors successfully as a short cut in the building of ponds and dams.

Somewhat similar, but on a far larger scale, is the work done by Caterpillars in building the Stanford Stadium at Leland Stanford, Jr., University, California. Excavation for this huge arena, which seats 70,000 persons, was done with the aid of Caterpillars, which pulled excavators and removed dirt in a brand new short cut.

Caterpillars also have been employed frequently as a successful aid to wrecking buildings. For example, some years ago the Riverside Hotel in Reno, Nevada, was destroyed by fire. Instead of wrecking the shell of the building by old-fashioned methods, the contractor on the job tied a cable around the walls, fastened it to a tractor and gave it the gun. It took but a few minutes to accomplish a task that might have required hours.

Small firms and great organizations alike have found in Caterpillars new and surprising short cuts. There's the American Telephone and Telegraph Company, for example. In laying its $25,000,000 New York to Chicago cable, the work had progressed westward as far as the Allegheny Mountains when seemingly insurmountable difficulties were faced in the topography of the country. Rough mountains, stubborn underbrush, and other obstacles stood in the way. Somebody suggested Caterpillars. They were put on the job at once, hauling cable and poles, and loading coil cases. Thereupon, what had seemed impossible tasks were accepted as all in the day's work. Fragile loading coils were eased over rough spots in the trail; awkward reels, each carrying 5,000 pounds of cable, were delivered when they were wanted. It was no easy job but the Caterpillars put it over. They more than made good.

TAKING THE CHICAGO-NEW YORK TELEPHONE CABLE THROUGH THE MOUNTAINS

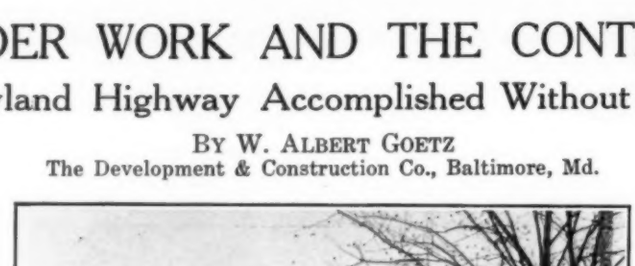
SHOULDER WORK AND THE CONTRACTOR

Widening of Maryland Highway Accomplished Without Holding Up Traffic

By W. Albert Goetz
The Development & Construction Co., Baltimore, Md.

IN the next few years shoulder jobs will be coming into greater prominence than at present. All the main arteries of traffic must be widened to take care of the increased number of machines operating, and the contractor who intends to bid on such jobs will do well to familiarize himself with the methods in successful use.

There are few kinds of work in which a well-functioning organization is more important than in this one. All operations for this class of work are practically continuous and the length of the job is usually considerable, so that a steady gait is more desirable than occasional spurts with periods of laxity coming in between.



FILLING IN MACADAM AT EDGE OF NEW CONCRETE SHOULDER

The scattering of the day's work along a distance of approximately ¾ of a mile conduces to several difficulties that are not met with on other types; notably the inclination of the men to take it easy when the foreman is not in sight. This may be partially overcome however by having a definite amount of work to be done each day and holding to this mark as closely as the conditions will permit.

One of the first things to be considered in planning a shoulder job is the method to be used. Shall it be a central proportioning plant, a central mixing plant or a combination? The method used by the Development & Construction Co. of Baltimore, Md., on

EDGE OF MACADAM ON NATIONAL PIKE CUT AWAY BY TRAFFIC. CONCRETE SHOULDER COMPLETED ON OPPOSITE SIDE OF ROAD

that organization's latest shoulder work is appended.

This job was exceptionally difficult in having so much traffic to handle and in the length of the haul. The traffic was taken care of by having the mixer right at the work, making it unnecessary to block the road while a truck was unloading. In this system the mixer and the trucks are all on one side of the road, leaving the other open for traffic, and on this job there never was any appreciable delay.

The long haul with the difficulty of getting the trucks to the mixer on time was overcome by paying the driver by the batch instead of by the hour, resulting in maximum efficiency, as each driver was interested in making as many trips as possible.

Working at full capacity, this outfit, for a 10-hour day, put down 2300 ft. of 3-ft. shoulders and averaged 1800 ft. per day.

This job consisted of 22 miles of shoulders built for the Maryland State Roads Commission, along the National Highway, between South Mountain and the city limits of Hagerstown. The whole length of the work was in the mountains of western Maryland along a road where the traffic was continuous and the highway had to be kept open.

PREPARING THE SUBGRADE ON SHOULDER WORK

A short résumé of the job and the conditions under which it was carried through to completion follows:

1.—**The Proportioning Plant**—This was located at the quarry of the Security Cement & Lime Co. at Security, Md., about 3 miles from the nearest end of the job. Here the stone was loaded directly from the Security bins into trucks by means of a mixing belt to give the correct proportions of the various size stone. When the stones had been loaded on the trucks they were sent to a convenient siding where the sand cars were located. This sand was loaded into movable batch boxes hanging from the side of the car and these boxes were tipped into the trucks as they arrived. The truck then proceeded to a second siding, where the cement was thrown on. These sidings were so arranged that after the trucks left

CARTS WERE USED TO DISTRIBUTE THE CONCRETE ON THIS JOB

the stone bins they were always moving in the direction of the job. The time required to load a truck was small and at no time were they held up by inability to load. The stone and cement were secured from the Security Company as they were needed and the sand was shipped to the job by rail.

2.—**The Trucking**—The trucks used on this job consisted almost entirely of 5-ton trucks capable of hauling four 5-bag batches on each trip, the bodies being so divided and each division so marked as to get the required amount of sand and stone in each batch. The number of trucks ranged from 22 on the longest haul of 14 miles to 7 on the short haul of 3 miles. These trucks, as previously indicated, were paid by the number of batches hauled rather than by the hour.

3.—**The Mixing Plant**—This consisted of a 21 E paver which moved along the road constantly as the shoulders were poured. The trucks backed up to the pan of the mixer dumped in their batch and moved forward a few feet to allow the skip to rise. The trucks in turning always selected some side road even at a little distance from the mixer so as not to hold up the traffic.

4.—**The Subgrade**—The scarifying for the rough

THE FINISHED JOB—AN OLD FOURTEEN FOOT MACADAM ROAD WIDENED TO TWENTY FEET BY THE ADDITION OF THREE FOOT CONCRETE SHOULDERS

grade was done by a 10-ton roller with scarifier attachment. This was followed by a small tractor pulling a road machine which threw the surplus dirt to one side, leaving comparatively little for the fine grade men to do. In some places where the roller and road machine could not work it was necessary to pick out the grade by hand, but this was very infrequent. A large amount of limestone rock was encountered in places and made necessary considerable blasting which was handled by the foreman in charge of the rough grading. All blasting was done by mudcaping.

The men on the subgrade were used in the morning for the requisite covering and curing behind the mixer of the previous day's work.

5.—The Formsetters—Four men had entire charge of setting and pulling the forms which were hauled ahead as they were needed in a small truck.

6.—The Pipe Line—This was also handled by four men. Three of them were constantly tearing up and relaying pipe and the fourth was in charge of the pump. The pump was a quadruplex outfit and was quite competent to take care of the mixer and furnish water to the roller as required. The season was exceptionally dry and many of the smaller streams were without water, making it essential to have a pump powerful enough to bridge the distance between the various sources of water supply. The largest amount of pipe in use at one time was three miles.

7.—The Concrete Gang—These were all picked men who were paid at a higher rate than the other workmen. The increased activity of these men, however, more than paid for the slight raise in pay. There were several extra men used on account of the uniformity of the stone aggregate at times and because the shoulders had to be struck off both crosswise and longitudinally, using a 3-ft. 6-in. strike off in one case and a 10-ft. one in the other.

8.—The Crew Organization—This was as follows:

Proportioning Plant—
9 men and foreman.
2 men loading stone and dust.
5 men loading sand.
2 men loading cement.

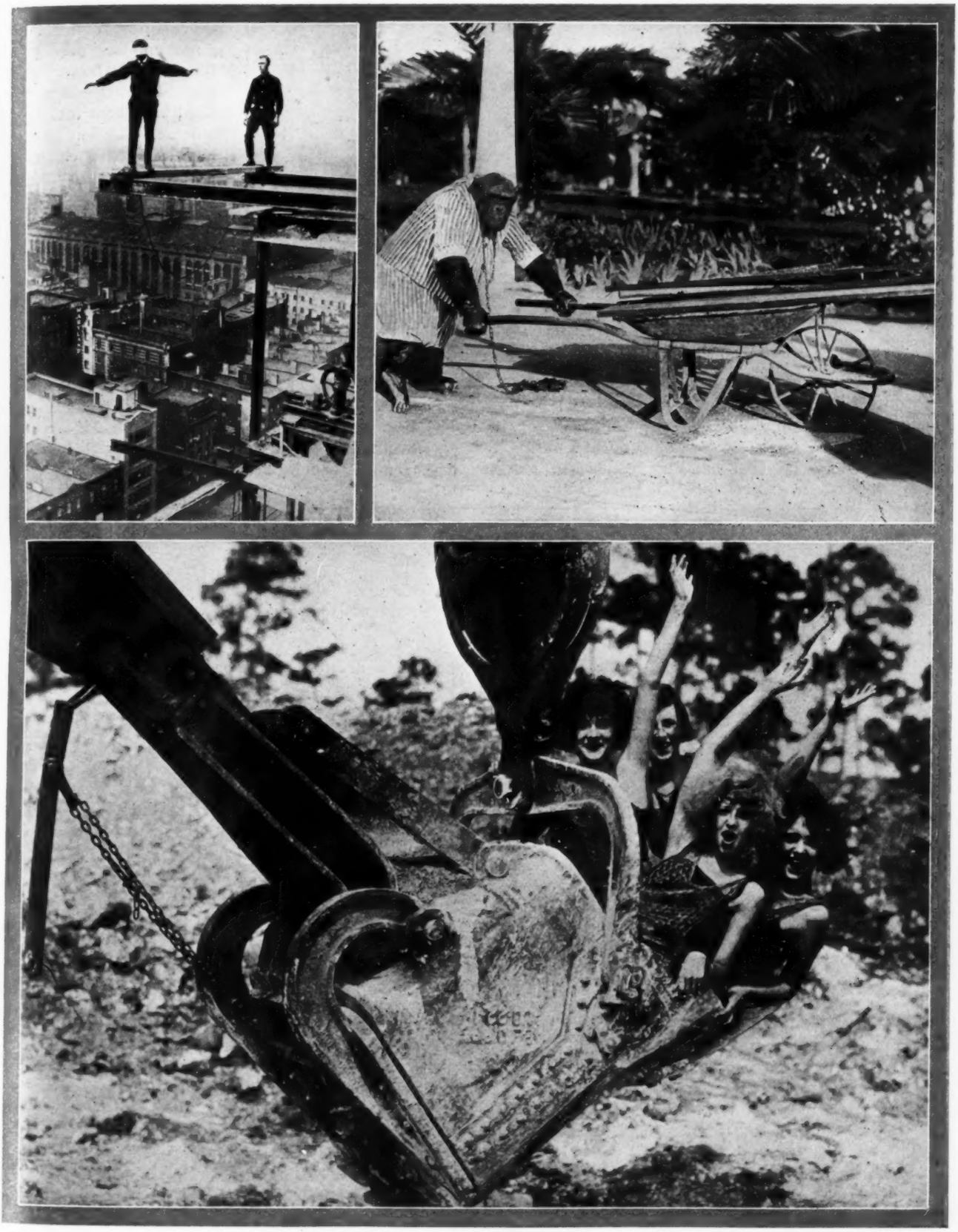
Mixer Operation—6 men.
1 mixer engineer.
1 mixer fireman.
1 man tending hose.
1 man picking up empty cement sacks.
2 men dumping trucks.

Subgrade—
15 men and foreman.
1 man scarifying.
2 men tractor and road machine.
4 men forms.
4 men grading.
2 men fine grading.
2 men hauling pipe and forms.

Pipe Line—4 men.
3 men laying pipe.
1 man pump.

Concrete Gang—
14 men and foreman.
3 men finishing and edging.
4 men tamping and striking off.
3 men floating.
4 men handling mix.

There's Room for Anybody in the Construction Field

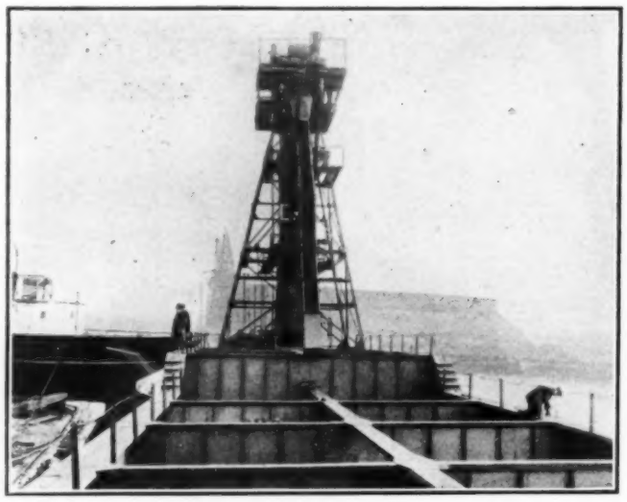


Whether or not the workers shown on this page are typical members of the great construction industry is left entirely to the judgment of the readers of this issue of Successful Methods. © *International*

STEEL COAL BOAT SUPPLIES WATERFRONT INDUSTRIES

Specially Designed Craft Solves Material Handling Problem

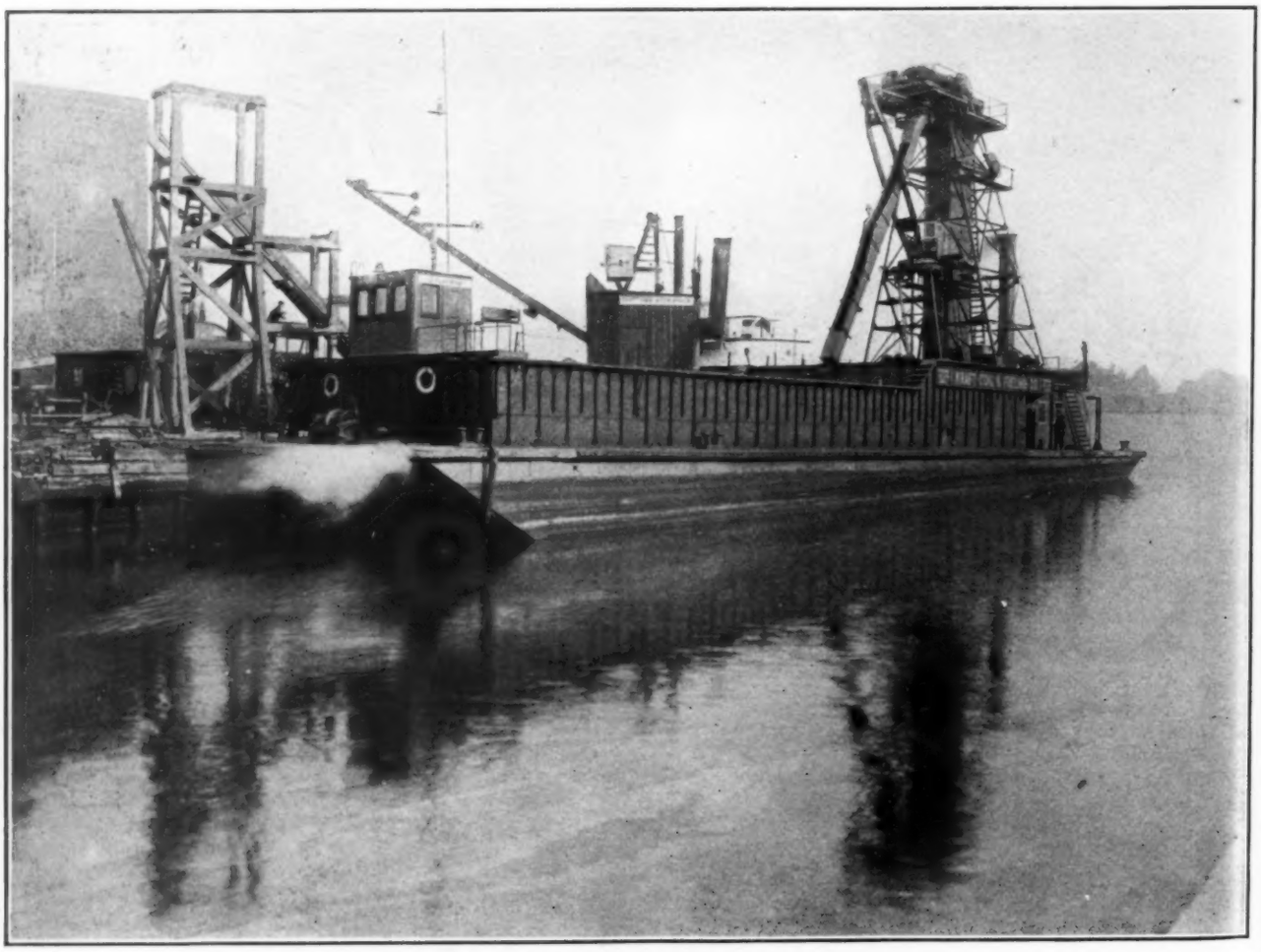
MATERIAL handling is so important a factor in the industrial life of the country that any improvement that makes it easier and more economical to transport materials of any kind is of interest to everyone. And the interest is doubled when the material handled is coal, which is a vital factor in almost every industry. This article describes a new coal carrier on the Great Lakes which is working in the vicinity of Chicago.



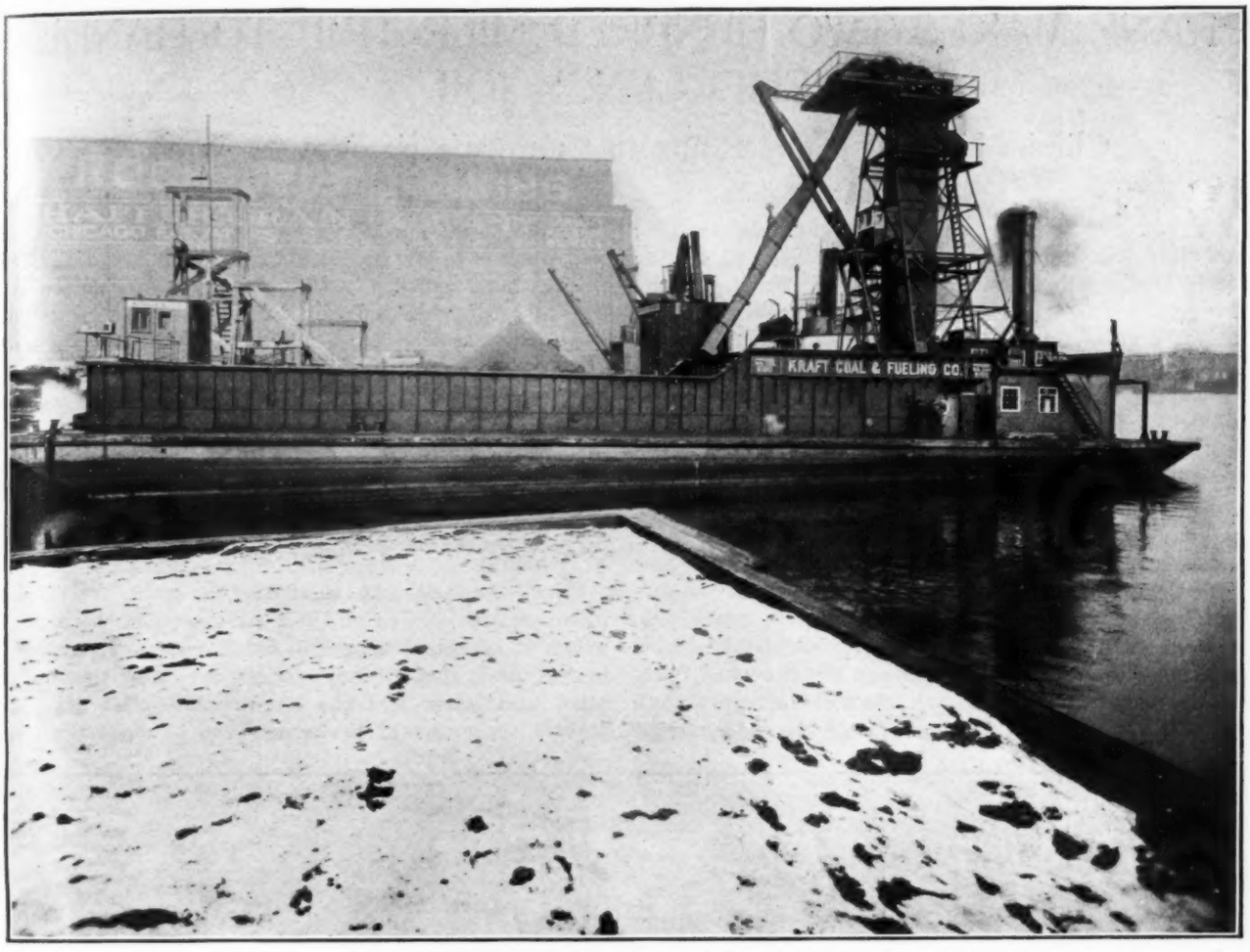
LOOKING ACROSS THE BINS ON THE KOALKRAFT

The Koalkraft is a coal loading or refueling boat which was built for the Kraft Shipyard & Dry Dock Company of South Chicago. The special coal handling machinery on the boat is operated by a Clyde 10 by 10 steam engine that has been performing satisfactory service since the day the Koalkraft went into commission. The boat handles coal which is brought in by freighters and then is distributed to industries along the waterfront.

The freighters bringing the coal to the storage yard tie up alongside the dock and are unloaded by two traveling steam operated cranes which have bucket capacities of 1¼ yd. each. The storage yard holds over 8000 tons. This coal is all piled over a tunnel which is over 130 ft. long. It has openings which open at regular intervals so that



THE KOALKRAFT AT HER PIER



THE VESSEL IS 160 FT. IN LENGTH

the coal falls on a belt conveyor and is brought over to the water's edge where the Koalkraft, the fueling boat, is loaded at the rate of 150 tons per hour. Lake boats, of suitable size to enter the harbor, can also be loaded at the same rate of speed.

The Koalkraft is a boat of all steel construction, having a capacity of 800 tons of coal. The bottom of the boat is divided into compartments of different sizes. There are five 100-ton pockets, two 75-ton pockets, and three 50-ton pockets. Each compartment has a trap door through which the coal falls on a 36-in. belt conveyor which advances the coal to a 65-ft. bucket elevator tower. The elevator buckets are 24 in. by 42 in.

When the coal reaches the top of the elevator it is dumped on to a swivel head and then to a 50-ft. chute. Coal can be unloaded from this boat at the rate of 200 tons per hour. The gates, which allow the passage of coal from the chutes to conveyor, are hand-operated through a rack and pinion. They are equipped with levers to alleviate the load which is constantly bearing down on the gates. The conveyor can be shut off at any position in the tunnel, which is directly under storage bins, by a continuation of the control of the belt drive.

The Clyde steam engine operates the belt conveyor and the elevator buckets. This engine, which is the 10 in. by 10-in. size, develops 60 hp. at a constant speed. The engine is equipped with a force-feed system of lubrication, having a line running above the throttle and a separate line to each of the cylinders. The throttle is operated by means of a banked lever located in the operating house, which is in the center of the boat from where all unloading is controlled.

All the necessary equipment to operate the boat is in the engine room. A Scotch marine 140-lb. pressure boiler, which is 9 ft. 6 in. in diameter and 12 ft. in length, furnishes the steam for all equipment. Two simple non-condensing 14 in. by 16 in. engines propel twin screws. A steam-driven lighting system of 7½ kw.-hr. capacity furnishes electricity for the electrical equipment on the boat.

The length of the entire boat is 160 ft., the width 36 ft. It draws a 10-ft. 6-in. water line.

Cover Shows City Paving Job

THE photograph on the cover of this issue of SUCCESSFUL METHODS shows a Koehring 13-E paver hard at work laying a concrete pavement in Sheboygan, Wis. It is a typical photograph of city street paving work being carried on with the latest and most improved kinds of equipment.

CRANE MAKES TWO HUNDRED MILE TRIP TO HANDLE EMERGENCY JOB

Climbs Hills of Ridge Route in California on Way to Work

WHEN some unforeseen difficulty occurs in a construction job and the equipment on hand is not fitted to handle the unexpected work, the contractor is in danger of losing a good share of his profits through the delay. Such a situation arose recently at Porterville, Cal., where Cox & Taget of Ontario, Cal., were building two septic tanks 30 ft. in diameter 28 ft. in depth with 10-ft. cone-shaped tops.

The tanks were constructed without bottoms, but with a cast iron, wedge shaped ring on the bottom to act as a cutting knife. On this was built reinforced concrete 12 in. thick, 28 ft. high. The rings were set in a trench 8 ft. deep dug with a horse-drawn scraper. As the soil was sand, it was planned to lower the tanks by pumping the sand and water out of the inside, allowing the tanks to settle as the sand was withdrawn. The ground water level was found to be 20 ft. below the surface, and when the sand had been removed to the ground water level and the contractors began to lower the water level inside the tanks below the ground water level, they found that the sand under the tank shoe and the ground around outside of the tanks began to settle.

When no further headway could be made by pumping it was decided to obtain a clamshell crane to excavate the balance. Cox & Taget had had previous experience with the three Universal cranes owned by the Smith Bros. Truck Company of Los Angeles, and consequently they phoned them to send a crane to the Porterville job. They selected a Universal because its mobility would get it to the job quickly with negligible moving cost and its light weight would enable it to stand on the soft sand with a minimum of cribbing.

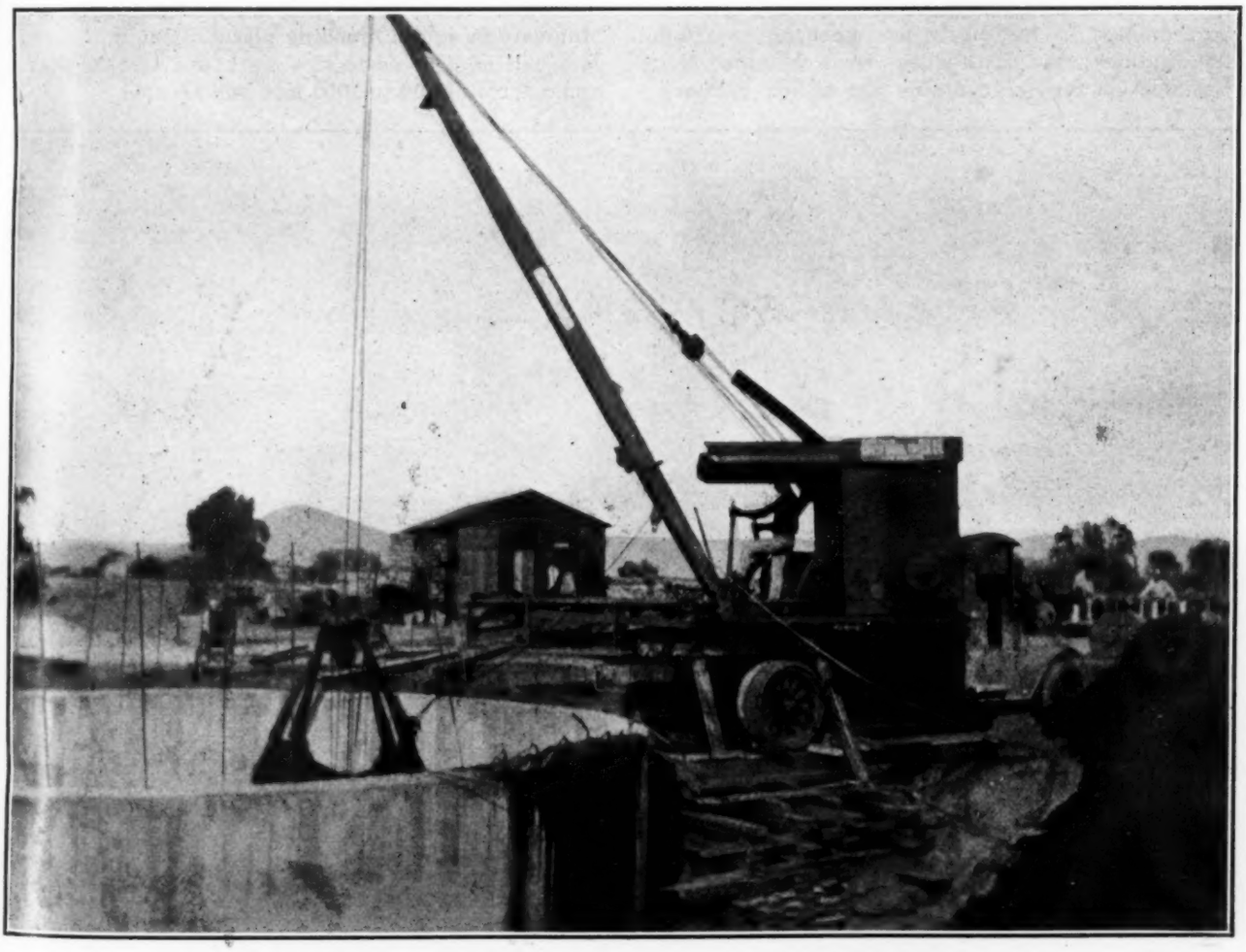
When the call was received the crane was busy handling steel plates on the dock shown in the photograph at the top of page 15, but a half-yard clamshell bucket was immediately substituted for the hoist block and sling, and the trip of 200 miles started. It took the crane 18 hr. travel time to make the run

CRANE REMOVING SAND FROM SEPTIC TANK

CRANE WORKING ON DOCKS JUST BEFORE ITS LONG JOURNEY

of 200 miles from Los Angeles to Porterville, 50 miles of which were over the famous Ridge Route, which includes grades from sea level to the summit, at 4213 ft. elevation. They didn't worry the crane a bit.

Arriving at the job it was necessary to place cribbing for the crane to stand on where the ground had settled on the outside of the tanks, but because of the light weight of the Universal this was quickly and



THIS PHOTOGRAPH SHOWS THE LIGHT CRIBBING ON WHICH THE CRANE STOOD

economically accomplished. Using a clamshell bucket and maintaining an equalized water pressure inside and outside the tank settled smoothly and evenly into place. The bucket was working under 18 ft. of water when the bottom shoe reached its final location 38 ft. below ground level. The pictures show the crane on the job, excavating the sand from the tank.

At the time the crane began work the tanks had 14 ft. of sand friction on the outside and it required 6 hr. work to remove enough sand on the inside for the tank to begin to settle. The second day it was lowered 5 ft. 6 in., the third day 3 ft. and 1 ft. in 3 hr. on the fourth day. The second tank was lowered a total of 11 ft. in four days. By proper manipulation of the clamshell bucket the tanks settled evenly and at the finish were perfectly level across the top. The cone top was built on after the straight sections had been lowered to final position.

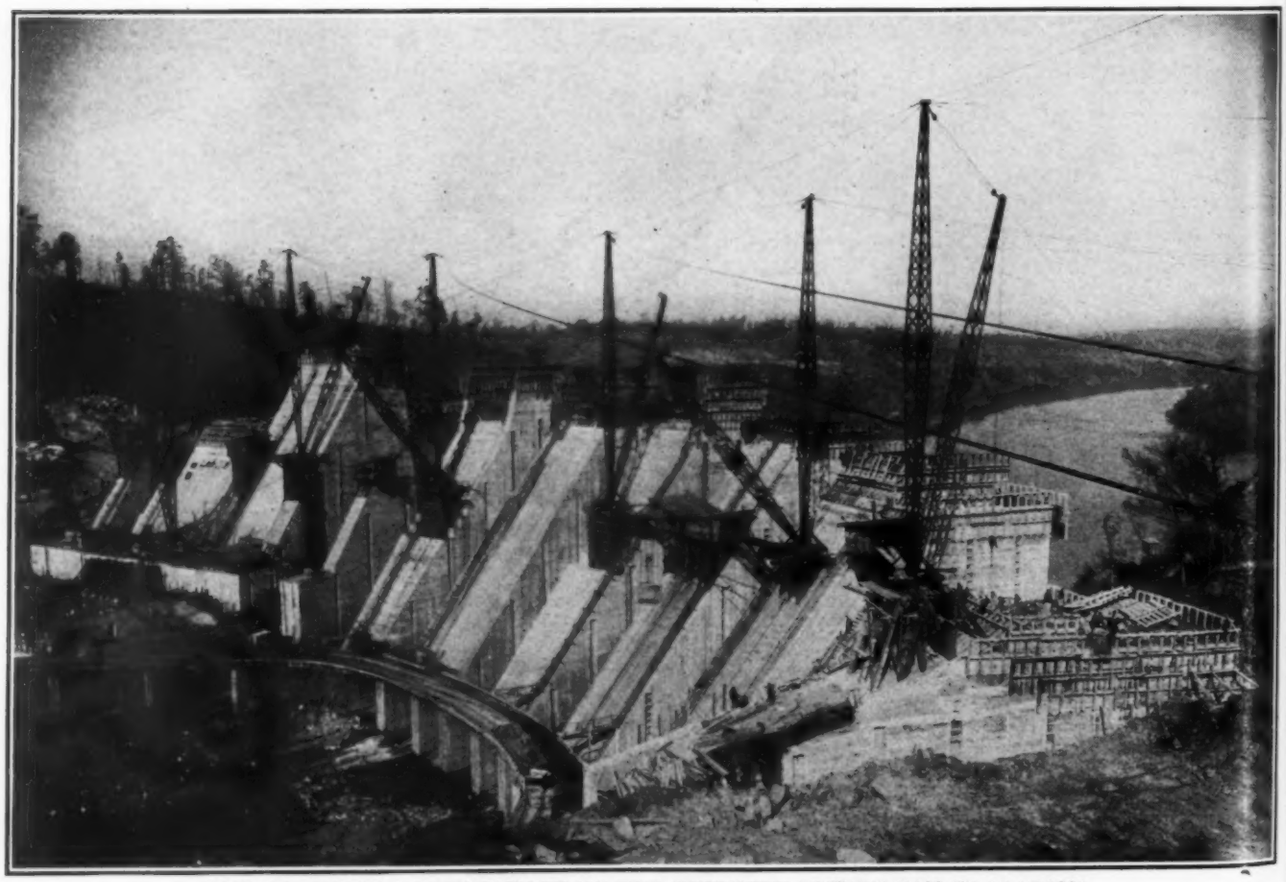
NEW DAM IN ALABAMA WILL IMPOUND VAST STORE OF WATER

ALABAMA is building what will be one of the largest artificial lakes in the world. The Alabama Power Company is developing new hydroelectric resources and this big lake will be formed above Cherokee Bluffs on the Tallapoosa River. It will have an area much greater than the city of Birmingham and all its suburbs. The shore line will be 700 miles in length and the lake will cover 60,000 acres of farm and forest land in three counties.

A proper conception of the storage capacity can be gained by comparison. Against the 530 billion gallons at Cherokee Bluffs, there are to be but 170 billion gallons at Muscle Shoals. The Ashokan and Kensico reservoirs, from which New York City draws its supply, contain but 200 billion gallons combined. The Hetch-Hetchy Reservoir, for San Francisco, has an initial capacity of 67 billion gallons, which will be increased as the city's needs expand to 116 billion gallons; the Pathfinder Dam of the U. S. Reclamation Service contains 330 billion gallons.

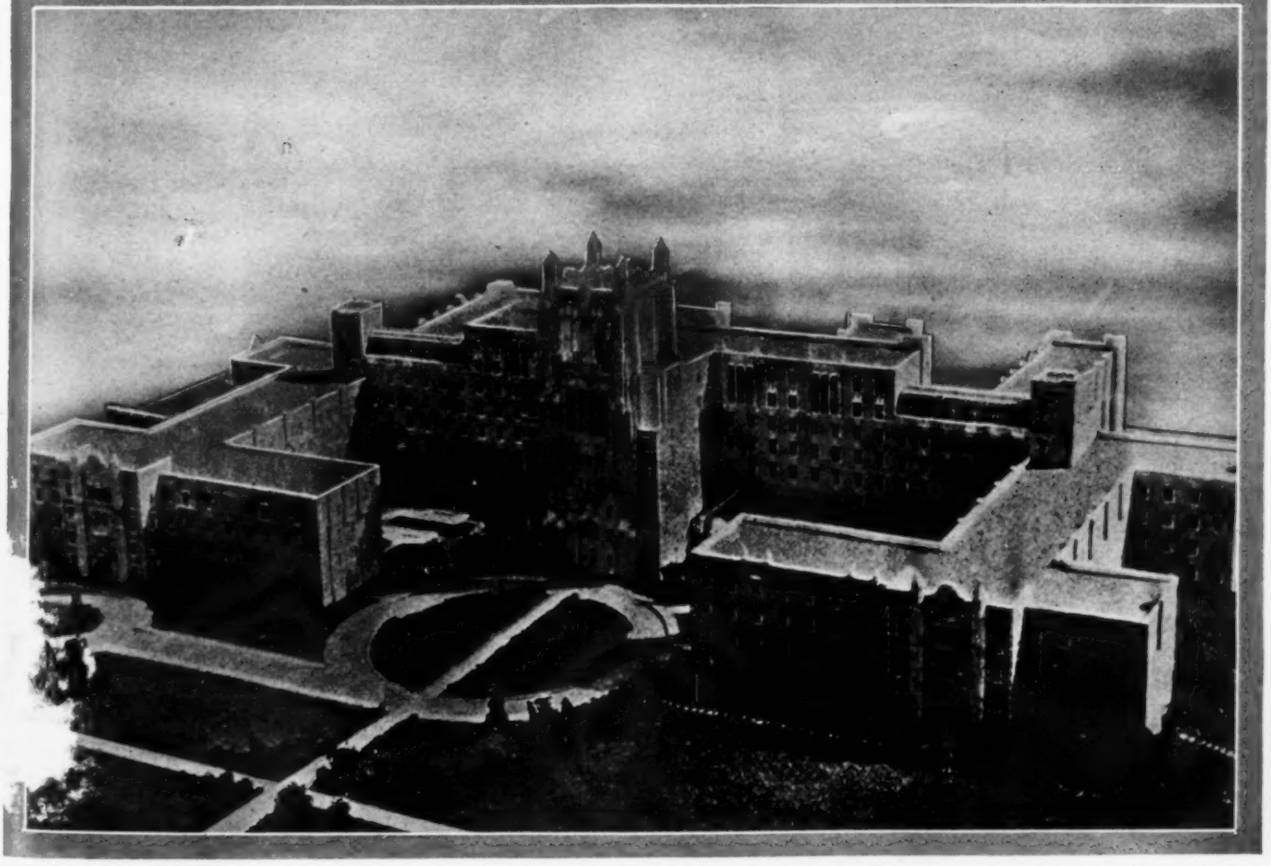
There will be such a vast store of water at Cherokee Bluffs that its control will assure practically the year around 4½ ft. navigation in the Alabama River, into which the Tallapoosa flows, to the Gulf of Mexico. Furthermore, the danger of overflow in both the lower stretches of the Tallapoosa and in the Alabama will be reduced to a minimum. This will free from the hazard of flood some of the richest farm lands in the state.

Cherokee Bluffs is one of the most remote regions of Alabama. To construct this project, it was necessary to build a city of 3000 people in a wilderness and to extend a railroad. Under the terms of the Federal Water Power Act, trees whose tops will protrude above water must be felled and the shore line must be swept clean for a distance of 20 ft. above low-water level, to permit wave action and thus eliminate mosquito breeding places. One million dollars will be devoted to this work at Cherokee Bluffs, and a force of 700 to 1000 men will be used.



GOOD PROGRESS IS BEING MADE ON THE CHEROKEE BLUFFS DAM IN ALABAMA

Visualizing the Job in Advance



1. One of the architects for the new Los Angeles City Hall uses a model to point out the best features of the design. © *International*
2. The entire city of St. Augustine, Florida, is included in this model. © *Underwood & Underwood*
3. A complete model of the new building for the general hospital at the University of Iowa. It gives an excellent idea of how the finished structure will look. © *Underwood & Underwood*

COMBINATION HAUL SCORES VICTORY

Ohio Contractor Compares Methods Under Almost Identical Conditions

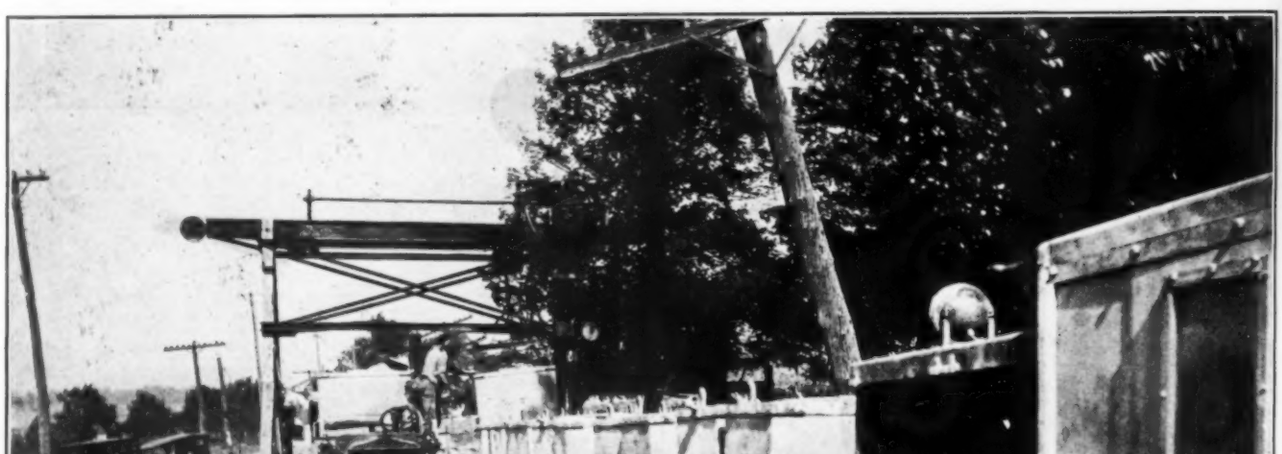
By T. J. Weidner
Sec'y and Treas., Geo. S. Mellert-Weidner Co., Medina, Ohio

THE combination of a sandy subgrade and wet weather gave an opportunity to emphasize the advantages of the combination haul plant under such conditions on one of the jobs which our company did last season in Ashtabula County, Ohio. The particular work in question was 12 miles of 16-ft. concrete road with an average thickness of 7¼ in., and as the job was not awarded until late in July and it was desired to complete as much of the work as possible before the close of the season, it was decided to put two outfits to work.

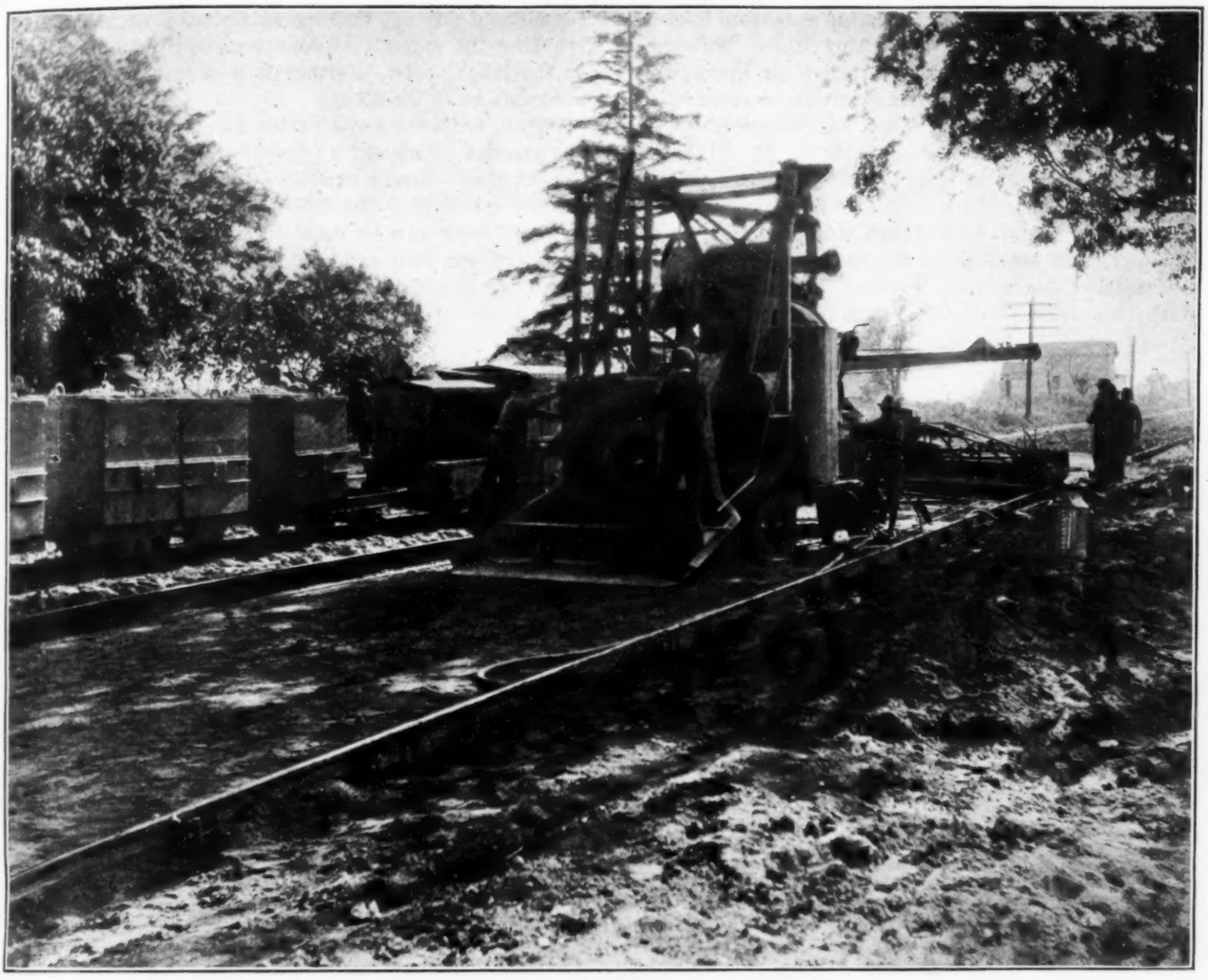
We started at one end of the job on Aug. 10 with our combination haul plant. A 21-E paver was used and materials were hauled on trucks in batch boxes from the central proportioning plant to a transfer where the boxes were lifted off the trucks and placed on narrow gage cars for delivery to the mixer, beyond the green concrete. The transfer device which we used was entirely home made and was designed by one of the members of our firm, L. J. Westland, who acted as superintendent of the work.

This transfer consists of an I beam across the road carried on two A frames. A hoist carried on a trolley on this I beam was operated by a Ford engine placed at one end of the transfer, as shown on the photograph at the bottom of this page. The entire transfer cost about $1,000 and proved to be quick and economical. We could transfer a box from trucks to cars or vice versa in a little less than 1 minute.

At the beginning of operation the mixer started at the transfer point and about 2 miles were laid when the transfer was moved ahead as far as the concrete was sufficiently cured to permit trucking over it. As the work progressed, this transfer was continually moved ahead so as to allow trucking over the new concrete as far as it was open to traffic.



TRANSFERRING AGGREGATES FROM TRUCK TO INDUSTRIAL TRAIN



AGGREGATES ARRIVING AT THE MIXER

Our haulage equipment consisted of Lakewood track, cars and batch boxes together with two 7-ton Plymouth locomotives. On the maximum haul we used three trains, which consisted of eight cars and sixteen boxes.

As a direct basis of comparison, we started on Aug. 20 with another outfit on the same job. This outfit was identical with the first one as far as the subgrading, mixing and placing equipment was concerned, but the hauling was entirely done by trucks. A large portion of the subgrade was sandy, while in other places it was entirely of clay. Very often it was necessary to plank over the sandy subgrade for the trucks because even the light trucks would almost bury themselves, necessitating rebuilding the subgrade and even resetting the forms. The sections of clay subgrade were particularly bad in wet weather and a great many rainy days were encountered during the time the work was in progress. This condition of the two plants working on a job where conditions of hauling equipment, type of work being done, etc., were identical and the only variation in the plants being in the method of haul, gave good opportunity for a direct comparison of the combination haul plant and the motor truck plant under such circumstances.

It was necessary to shut all of the work down before it could be completed on account of cold weather, but the combination haul plant, which started work Aug. 10 completed 7 miles, while the motor truck outfit which started work only ten days after the combination plant, completed 3 miles. In comparing these figures it must be remembered that the conditions of the weather and subgrade were such as to make the truck haul plant difficult to operate but did not affect the combination haul plant.

There seems to be no doubt that the combination haul outfit in the majority of instances will give greater production than the truck haul outfit for the same length of time. The reason is that the combination plant, where all hauling is done over good roads and with narrow gage is not compelled to shut down because of weather conditions to the extent of the truck haul outfit.

Naturally the gain in production with the combination haul plant, due to greater time it will work will be affected by the weather encountered and by the character of the subgrade over which hauling is done. It is true that some times conditions might be encountered where a truck haul plant would show to just as good advantage as the combination outfit. For instance, if a new road were being built over an old macadam base, the delays to the trucks from weather

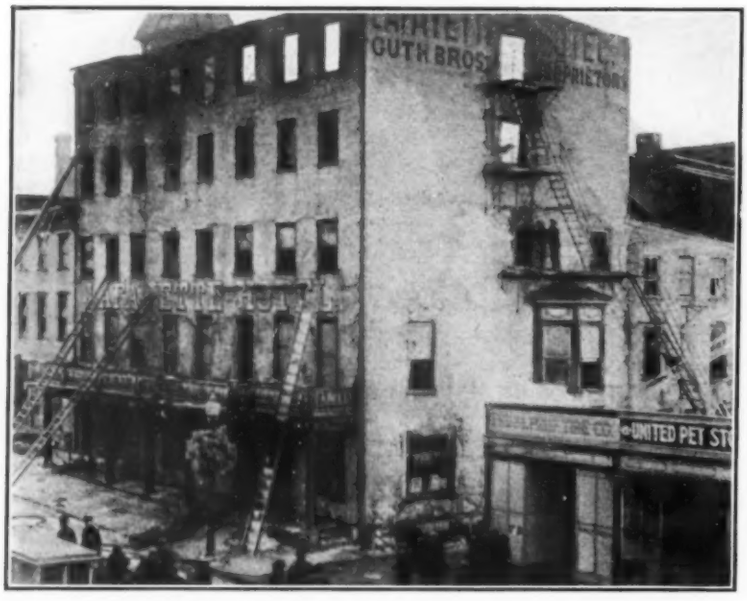
would not be so serious. Again, a season might be encountered with very few rainy days. But all in all, comparing one against the other for average conditions, it can be said with positive assurance that more working days per season can be expected from the combination plant.

There are certain other intangible factors which make the combination haul plant a producer of better profit to the contractor. There is a saving of material because it is possible to maintain exactly with the combination plant the required depth of subgrade. With the truck plant the subgrade once prepared is rutted and cut up, making retrimming necessary, increasing the amount of concrete required and adding to the labor costs. Neither is it possible to keep the subgrade as well rolled.

Again, with the combination haul plant, forms once set are not disturbed by trucks crowding them up or out of line. Roads can be built smoother with less hand work behind the finishing machine as a result, and the work can be done cheaper and better. As a result of our own experience with trucks and narrow gage, we are firmly convinced of the economy and advantages of the latter.

DELICATE WORK WITH DYNAMITE

Blasting Down of Walls of Fire-Gutted Hotel Accomplished Without a Hitch



READY FOR THE BLAST

AN expert and delicate dynamite job was accomplished at Allentown, Pa., recently when the walls of the old Lafayette Hotel which had been burned, were blasted down to facilitate the search for bodies of victims who had perished in the fire. It was feared that the old walls would fall inward and thus add a great mass of débris to the ruins in which the bodies were buried. In order to avoid this, the services of Charles V. Weaver, a dynamite expert of the duPont Company, were obtained and he succeeded in blowing down the walls so that they fell completely outward into the street and none of the material fell on the ruins inside.

The first, second and third stories of the hotel were built of stone with 18-in. walls, the fourth and fifth stories were of brick. This combination of materials added to the difficulty of the work.

The method employed in blasting down the walls was as follows: A number of 1¼-in. holes, 9 in. deep, were drilled into the 18-in. stone walls, 1 ft. apart. These holes were all in line with the window sills of the first floor. Three holes were loaded with 1¼-in. x 8-in. sticks of 60 per cent ammonia dynamite, one stick to each hole. Then these three holes were fired. Three shots were made to weaken the walls and prevent them from going inward.

The final shot was on the southwest corner and consisted of five holes, with one stick of dynamite to each hole. The entire front of the hotel and part of the southwest side fell outward, landing on sidewalk and partly in street. Comparatively little material was found on the car tracks. No windows were broken and no other damage was done. The whole job was carried on with a maximum of efficiency and speed.

THE WALLS ALL FELL OUTWARD AS PLANNED